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ABSTRACT

Previous research has suggested that the attitudinal and frequency dimensions of social support are independent. To examine the stability of support, the effects of support on depressive symptomatology, and the effects of depressive symptomatology on support over a 1-month period, 112 college students completed the Beck Depression Inventory, the Center for Epidemiological Studies-Depression Scale, the Self-Rating Scale for Depression, and an attitudinal measure of support. Analyses were done in the framework of latent variable structural equation models in which latent variable constructs, the social support construct, and frequency measures were examined longitudinally. The results illustrated that social support encompasses both qualitative (attitudinal) and quantitative (frequency) notions, suggesting that these are dependent dimensions of support. In the context of examining the effects of support on depression/distress over 1 month, it was shown that the effect was not statistically significant from zero, although the within-time correlation between these two constructs was high. Finally, a small but significant effect was found linking distress/depression and self-reported social support behaviors over a period of 1 month in this sample. (BL)

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LONGITUDINAL LATENT VARIABLE MODELS OF SOCIAL SUPPORT AND DEPRESSIVE SYMPTOMATOLOGY IN COLLEGE STUDENTS

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Longitudinal latent variable models of social support and depressive symptomatology in college students

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Abstract

This study considers longitudinal latent variable models of social support and depressive symptomatology in a college student sample. While support is shown to be highly stable over time, negligible effects are found for the impact of support on depressive symptomatology or depressive symptomatology on support over one month.

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Purpose: This study was designed to look at the stability of support, the effects of support on depressive symptomatology, and the effects of depressive symptomatology on support over a period of one month. The sample consisted of 112 undergraduates who participated in the study for course credit and with informed consent.

Analyses were done in the framework of latent variable structural equation models. Three observed variable indicators were used for each of the two latent variable constructs of interest. For the depression/distress construct, scale scores from the Beck Depression Inventory (BDI), the Center for Epidemiological Studies-Depression Scale (CES-D), and the Self-Rating Scale for Depression (ZUNG) were used. For the social support construct, an attitudinal measure of support (e.g., "My friends are very supportive of me" answered on a five-point scale) was used in conjunction with two frequency measures of support gauging the amount of support obtained from either friends or relatives. When the constructs were examined longitudinally, an invariant measurement structure was assumed across time. Further, in all examinations of longitudinally assessed constructs, residual covariances between the scale assessments for individual scales at Time 1 and Time 2 were included to account for possible scale-specific variation not accounted for by the constructs.

Study 1: The Stability of Social Support

In this study, the model of Figure 1 was tested to examine the stability of social support over a period of one month. The model was a well-fitting one for these data with a goodness-of-fit chi-square value of 12.12 on seven degrees of freedom ($p = .10$). The estimated stability of the social support constructs was .86.

Study 2: Cross-Lag Effects of Support on Depression

Here the model depicted in Figure 2 was tested. This model was demonstrated as being not consistent with the observed data with a goodness-of-fit chi-square value of 68.25 on 23 degrees of

freedom. The lack of demonstrated statistical adequacy for this model may be due to previously shown violation of the maximum likelihood normality assumption, particularly with respect to the depression/distress indicators (Tanaka & Huba, 1984). When empirically determined covariances were added to the formulation and a small negative residual variance associated with the attitudinal measure of social support was fixed to zero, a model with statistically acceptable fit was obtained (chi-square value = 27.71 on 19 degrees of freedom). The substantive resistance of the model to the addition of the empirically determined residual covariances was assessed by computing the correlation coefficient between the major parameter estimates of the two models. The value of this correlation coefficient was .996.

In looking at the linkages between constructs in this model, we note that the depression and social support constructs are strongly correlated within time (r = -.48) indicating that higher levels of support are associated with lower levels of psychological distress/depression. The depression construct was stably measured over time (standardized regression coefficient = .74) but there was no significant influence of the support construct on the depression construct over time (standardized regression coefficient = -.07).

Study 3: Cross-Lag Effects of Depression on Support

Here the model depicted in Figure 3 was examined. The model as depicted again failed to represent the data in a statistically adequate manner (chi-square = 66.74 on 23 degrees of freedom). Again, this lack of fit is possibly attributable to violations of the normality assumption. When empirically determined residual covariances were added, the fit of the model improved (chi-square = 45.13 on 20 degrees of freedom). The substantive robustness of the solution was demonstrated by the correlation between major parameter estimates of .949.

In examining the major interrelationships between constructs, a correlation of -.314 was observed between the constructs within time. Across time, the effect of support on depression/distress over the period of one month was small but statistically significant (standardized regression coefficient = .14) suggesting a small effect of high levels of distress influencing self-reported support seeking. The stability of the social support measure was high (standardized regression coefficient = .84).

Conclusions

The findings from this study illustrate a number of points. In our scaling of the social support construct, we illustrate that social support can be thought of as encompassing both qualitative (attitudinal) and quantitative (frequency) notions suggesting that these are not independent dimensions of support as some have suggested (e.g., Sarason, Levine, Basham, & Sarason, 1983).

In the context of examining the effects of support on depression/distress over one month, it is shown that the effect is not statistically significant from zero although the within-time correlation between these two constructs is high. Finally, a small but significant effect was found linking distress/depression and self-reported social support behaviors over a period of one month in this sample.

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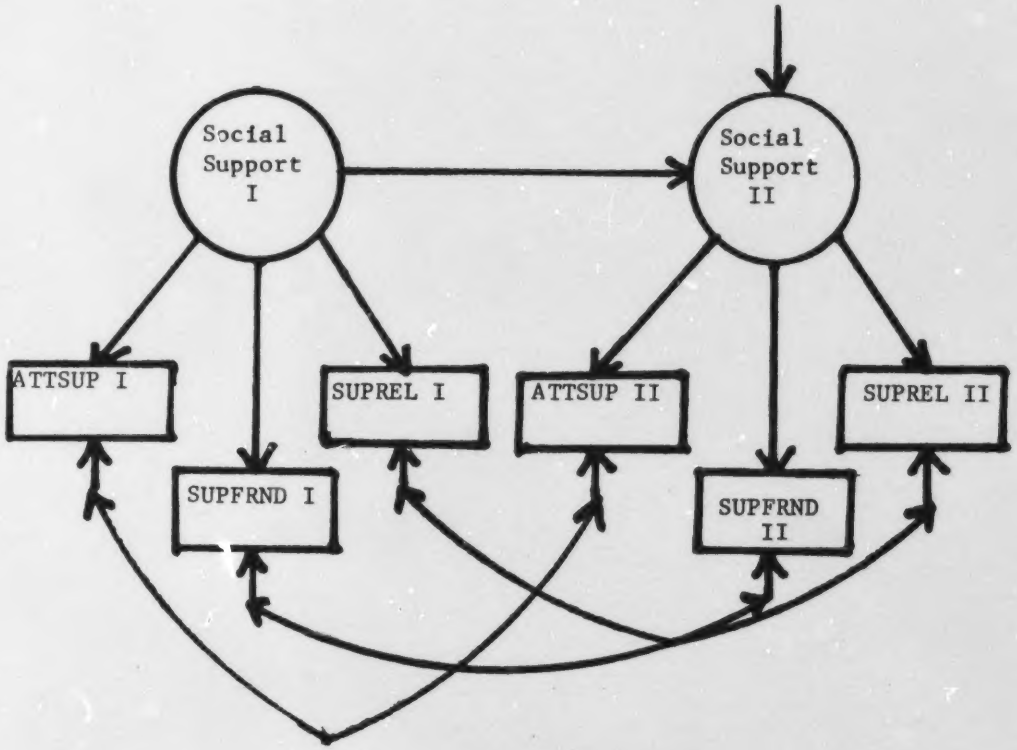
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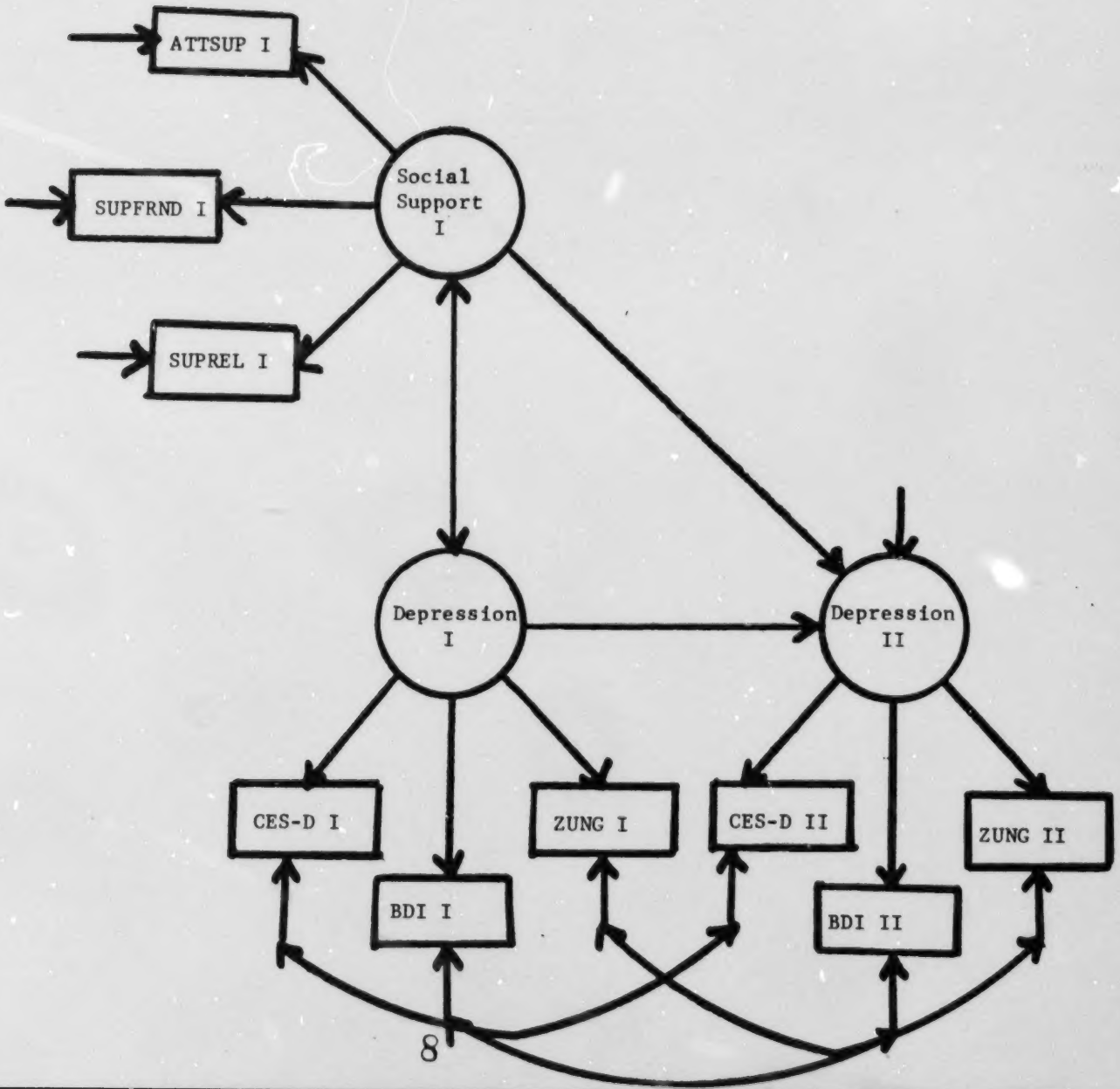
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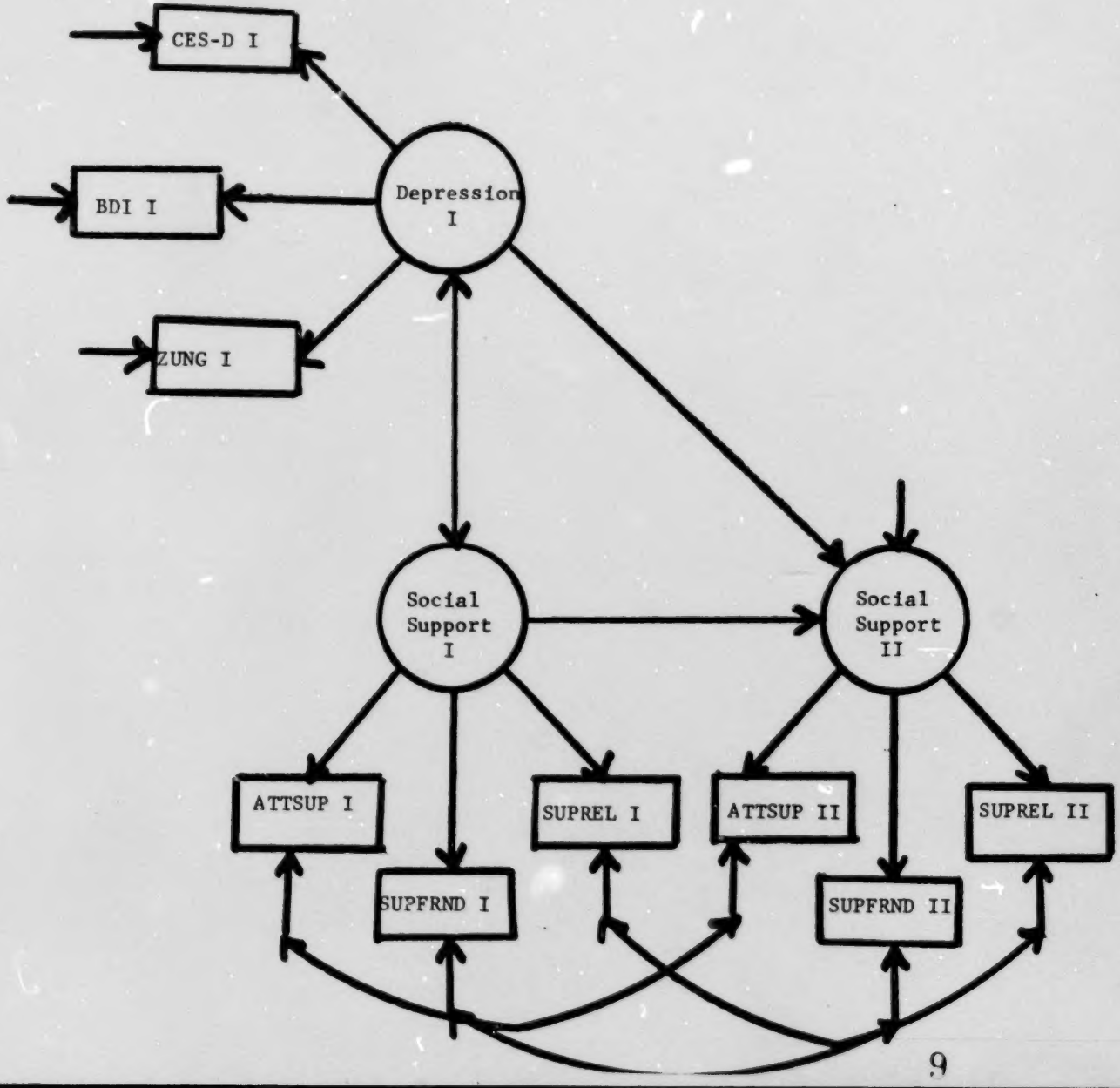
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Table 1

Examples of Item Content from the Social Support Scales

I. Attitudinal measures of support
My friends are very supportive of me.
I wish I were closer to my relatives.
I feel needed by others.
My friends count on me to help them with their problems.
II. Frequency of support from friends
How many close friends do you have?
In the past month, how many times have you told a close friend about an emotional problem you were having?
How many friends do you have whom you would tell about a physical problem?
III. Frequency of support from relatives
How many relatives do you have whom you would tell about an emotional problem?
In the past month, how many times have you told a relative about a physical problem you were having?
In the past month, how many times have you asked a relative for advice about an emotional problem you were having?

Table 2
Maximum Likelihood Estimates for a Stability of Socal Support Model

Parameter	Estimate
Loading of Attitudinal Support on the Social Supporpt Construct	4.59
Loading of Frequency of Support from Friends on the Social Support Construct	8.33 (6.62)
Loading of Frequency of Support from Relatives on the Social Support Construct	6.24. (5.89)
Factor Variance for Social Support Construct, Time 1	1.00*
Residual Variance for Social Support Construct, Time 2	.26 (2.96)
Regression Coefficient for Social Support, Construct, Time 2 on Social Support, Time 1	.86 (10.07)
Residual Varince for Attitudinal Support, Time 1	69.55 (6.48)
Residual Vriance for Frequency of Support from Friends, Time 1	58.90 (3.18)
Residual Variance for Frequency of Support from Relatives, Time 1	60.98 (4.91)
Residual Variance for Attitudinal Support, Time 2	67.62 (6.57)
Residual Variance for Frequency of Support, Time 2	39.83 (2.43)
Residual Variance for Frequency of Support from Friends, Time 2	39.83 (2.430
Residual Variance for Frequency of Support from Relatives, Time 2	50.55 (4.56)
Residual Covariance for Attitudinal Support across time	47.61 (5.26)
Residual Covariance for Frequency of Support from Friends across time	23.08 (1.59)
Residual Covariance for Frequency of Support from Relatives across time	45.31 (4.38)

Note. Critical ratios in parentheses. Astrisk denotes parameter fixed at given value for each loadings of the support scales constrained to be equal across time. X2 (7) = 12.12

Table 3

Maximum Likelihood Estimates for the Cross-Log Effects of Support on Depression

Parameter	Estimate	
Loading of the CES-D on Depression	7.57	(11.24)
Loading of the BDI on Depression	4.78	(11.71)
Loading of the ZUNG on Depression	6.29	(10.58)
Loading of Attitudinal Support on Social Support	9.74	(14.90)
Loading of Frequency of Support from Friends on Social Support	4.95	(4.61
Loading of Frequency of Support from Relatives on Social Support	2.75	(3.07)
Factor Variance of Depression, Time 1	1.00*	
Factor Variance of Social Support	1.00*	
Residual Variance of Depression, Time 2	.47	(4.17)
Factor Correlation between Depression. Time 1 and Social Support	-.48	(-6.12)
Regression Coefficient of Depression, Time 2 on Social Support	-.08	(-.92)
Residual Variance of CES-D, Time 1	28.05	(5.02)
Residual Variance of BDI, Time 1	11.99	(5.44)
Residual Variance of ZUNG, Time 1	20.15	(5.39)
Residual Variance of Attitudinal Support	0.00*	
Residual Variance of Frequency of Support from Friends	105.37	(7.45)
Residual Variance of Frequency of Support from Relatives	90.13	(7.51)

Table 3 (continued)

Parameter	Estimate	
Residual Variance for CES-D, Time 2	28.17	(5.18)
Residual Variance for BDI, Time 2	9.19	(4.65)
Residual Variance for ZUNG, Time 2	18.24	(5.39)
Residual Covariance between CES-D, Time 1 and cES-D, Time 2	3.41	(.75)
Pesidual Covarianc between BDI, Time 1 and BDI, Time 2	2.07	(1.29)
Residual Covariance between ZUNG, Time 1 and ZUNC, Time 2	11.10	(4.07)
Pesidual Covariance between CES-D, Time 1 and BDI, Time 2	-6.47	(-2.60)
Residual Covariance between BDI, Time 1 and Frequency of support from Relatives	6.31	(1.99)
Residual Covariance between BDI, Time 1 and ZUNG, Time 2	6.71	(3.51)
Residual Covariance between Frequency of Support from Friends and Frequency of Support from Relatives	37.47	(3.88)
Residual Covariance between Frequency of Support from Relatives and ZUNG, Time 2	7.996	(2.16)

Note. Critical ratios in parentheses. Asterisk denotes parameter fixed at the given value. Loadings for each of the Depression scales constrained to be equal across time. CES-D = Center for Epidemiological Studies - Depression Scale. BDI = Beck Depression Inventory. ZUNG = Self-Rating Scale for Depression

Table 4

Maximum Likelihood Estimates for the Cross-Log Effects of Depression on Support

Parameter	Estimate	
Loading of CES-D on Depression	7.73	10.03
Loading of BDI on Depression	4.90	9.70
Loading of ZUNG on Depression	5.85	9.11
Loading of Attitudinal support on Social Support	7.09	6.94
Loading of Frequency of Support from Friends on Social Support	7.95	7.18
Loading of Frequency of Support from Relatives on Social Support	5.34	5.35
Factor Variance for Depression	1.00*	
Fctor Variance for Social Support Time 1	1.00*	
Residual Variance for Social Support Time 2	.36	3.40
Factor correlation between Depression and Social Support, Time 1	-.31	-2.85
Regression Coefficient of Social Support, Time 2 on Depression	.14	1.96
Regression Coefficient of Social Support, Time 2 on Social Support, Time 1	.85	9.98
Residual Variance of CES-D	25.37	4.31
Residual Variance of BDI	11.98	4.77
Residual Variance of ZUNG	23.42	5.47
Residual Variance of Attitudinal Support, Time 1	43.19	3.67
Residual Variance of Frequency of Support from Friends, Time	74.91	4.74
Pesidual Variance of Frequency of Support from Relatives, Time 1	65.81	5.85
Residual Variance from Attitudinal Support, Time 2	44.99	3.45

Table 4 (continued)

Parameter	Estimate	
Residual Variance from Frequency of Support from Friends, Time 2	39.01	2.70
Residual Variance from Frequency of Support from Relatives, Time	57.54	6.08
Residual Covariance between Attitudinal Support, Time 1 and Attitudinal Support, Time 2	32.20	3.38
Residual Covariance between Frequency of Support from Friends, Time 1 and Frequency of support from Friends, Time 2	32.80	2.76
Residual Covariance between Frequency of Support from Relatives, Time 1 and Frequency of Support from Relatives, Time 2	50.65	5.64
Residual Covariance between ZUNG and Frequency of Support from Friends, Time 1	10.63	2.62
Residual covariance between Attitudinal Support, Time 1 and Frequency of Support from Relatives, Time 1	-10.89	-2.76
Residual Covariance between Attitudinal Support, Time 2 and Frequency of Support from Friends, Time 2	-18.02	-2.92

Note. Critical ratios in parentheses. Asterisk denotes paramter fixed at the given values. Loadings for each of the Social Support scales constrained to be fixed across time. CES-D = Center for Epidemiological Studies - Depression Scale. BDI = Beck Depression Inventory. ZUNG = Self-Rating Scale for Depression. $X^2_{20} = 45.13$, $p = .001$.